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WOLF AND COMPANY - ENGINEERS AND CONSTRUCTION COST CUIVOULINITIES

1056

BOSTON REDEVELOPMENT AUTHORITY

BRIT 10:56.

TENTON FUNCTION AND

PARK PLAZA STUDY

Draft report of a study of the project's potential impacts on construction labor in metropolitan Boston.

June 20, 1975.

OBJECTIVE:

This phase of the study addresses itself to the range of potential impacts of the five development program alternatives on the construction labor force of metropolitan Boston and to the potential range possible within each development program alternative.

METHODOLOGY:

- o DEMAND: For each development program alternative, two models were established: one reflecting a labor intensive design (cast in place concrete/ masonry enclosure/ etc) and the other reflecting a design which was not labor intensive (steel frame/ metal decks/ metal and glass enclosure/ etc.) From these models, craft profiles were calculated and superimposed on schedules established elsewhere in TSA's report to produce estimates of total and annual demand for craft labor. Those calculations are displayed for each of seven major crafts and in an eighth category which represents all the other crafts, FIGURES 1-10 (YELLOW) MODIT-20 (DWE)
- o SUPPLY: Current trade populations and corresponding unemployment figures for Boston were established from direct interviews with personnel in 17 individual craft unions and with

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representatives of contractor and labor councils in Boston. HAVE (PINC)

ASSUMPTIONS:

- o UNION LABOR: The scale of even the smallest alternative program suggests that the work will be done by union workers, and the calculations assume that it will.
- o STABILIZED LABOR POPULATION: The work force has remained essentially constant in the Boston area in recent years and this study assumes that constancy will continue.
- o LINEAR PROGRESS: This study accepts the approximation that the work will go forward in a more or less uniform way, and calculations of annual labor demand are made by dividing the estimated total demand by the estimated total construction time in years.
- o ALL DEVELOPMENT IS NEW: This study interpreted the programs to mean the all work identified as "new development" was new construction, and that renovation of existing buildings was not included. Construction labor demand for such renovation work would have to be added to the estimated demand identified in this report.

FINDINGS:

At the summary level, the study shows a current construction labor force in Boston of about 25,000, of which about 75% are currently employed. The development program alternatives were

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found to represent somewhere between a little over 200 jobs and just under 500 jobs over periods ranging from about 2-1/2 years to about 9 years.

The labor consuming characteristics of the five basic space types which comprise the alternatives are analyzed and are displayed in figures 1 through 10 inclusive (yellow.)

Those labor consumption data are superimposed on profiles of the development programs themselves to show total annual labor demands and to show annual labor demand by craft in figures 11 through 20 inclusive (blue.) Significant excerpts from the latter findings are, these:

- o The smallest devlopment program alternative, 2M, can be expected to require an average of about 218 construction workers over about 2-1/2 years if it is designed in the non-intensive mode and about 265 workers in the labor intensive mode. In the non-intensive approach the highest demand would be for ironworkers, whose population would average about 56 throughout the project (with much higher peaks) a figure which represents about 11% of the present ironworker unemployment in Boston.
- with about 92 men an average of about 92 men, roughly 50% of the currently unemployed caprenters in Boston.
- o Alternative 3M will require about 229 men in the low labor mode and about 290 men in the high labor mode. Ironworkers and carpenters, respectively, 62 and 104, on average. This alternative represents about 6.5 years at these average levels, where

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alternative 2M was calculated for 2-1/2 years.

- o Alternative 4M, also 6.5 years, shows 363 jobs in the nonintensive mode, 456 in the intensive. Ironworkers 95, carpenters 161, average through the life of the project.
- o Alternative 5M demands more labor, of course, but has been stretched out to 9 years, so the average annual demand in the non-intensive approach drops back to 343 and in the intensive approach it drops to 432. Ironworkers 90, carpenters 151.
- o In the largest development program alternative, 6M, the average annual demand over 9 years was calculated to be about 392 men in the low intensity approach and about 495 in the labor intensive approach. In this scheme, the ironworkers in the non-intensove mode would average about 106 men, about 21% of their current unemployment in Boston, and the carpenters in the labor intensive design would average about 176 men over 9 years, a figure which actually represents all the men they currently have unemployed in the Boston area.

CONCLUSIONS:

o An_annual demand averaging 500 workers represents only about 2% of the Boston construction force. Even allowing a peak of 2-1/2 times the average annual demand would only represent

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about 5%. Clearly, in the absence of a massive revival of demand from other sources (not now predicted) there is no threat of excessive demand of the labor resources of the area from any of the alternatives being considered here.

With an existing unemploymenturate of about 25% the likelihood is that this project can represent

- o The significant potential for impact on the construction marketplace lies in the project's capacity to engage some of the city's idle:labor.

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There is evidence that an approximately 25% increase in construction jobs resulting from labor intensifying the design, as calculated in this study, can be achieved without increase in total construction cost.

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\$0.00 \$0.00	16.2	20.0	1.87	619	27.8	1	58,3	ANG NO. MENBASED ON 2000HAS/12	ANG NO. MEN
61.6	37.4	40.1	37.5	123.8	456	-	11176	AMMUNI MH BASED ON 6.5 YEARS	AMMUNI MIH
200,2	2106400.2	260,3	243.5	2.208	296.2	- 1	764.8	25/5775	torn.
8.19	5/2	8,65	768	1110	614	, ,	1477	320000	HOMEL
51,3	18,2		7.2	128.4	27.6		88.2	55/090	PARICUE
119.0	1.74	71.6	1074	2980	111.9		280,/	8,950,00	SUSTANDADA
132,2	73.2	1030	44.1	1,02	8.89		176.2	550635	OFACE
35.9	25.9	259	0,8	1.59	26.5		73./	109050	RETAIL
MUDDIERS	EVELTIMUANS	STMFTES SMW	PUMBERS	IROMONICER	LABORERS	BRICKUSTERS	CARDENTERS		SPACE TYPE
	1)79	10111	5	NOTTO	MATERIALS OFT	MATE		
	(1 🕚	SAMS)	NOTHOU	M)sano	MANT	DY:	NE VEH	A PARK PL	FIGURE 6-20-75
	We will allow allow								11

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BRA PARK DLAZA STUDY: MAN HOURS (IN THOUSANDS)
6 AMERNATIVE: 4M
MATERIALS OPPON: WWW. S
ONCENS ENS
SPACE TYPE CARPEN LABOR FUMB FUMB AND AND AND AND AND AND AND AN
RETAIL 1252000 925 - 33,5 824 10,1 32,8 328 45,4
OFFICE 1092000 349,4 - 136,5400,8 87,4204,2 145,262,1
APARMENTS 1175000 367.18 - 146,9 391.3 141.0 94.0 55,2 156,3
609000 974 - 30
HOPEL - 618500 2845 - 11/8.8 214.6 148.4 115.7 99.0 119.4
+077 37265001/91.6 - 466,212310 3948 4467 3523 639.8
ANNUAL MH BASED ON 6:5 YEARS 183.3 - 71,71 189,4 60,7 68,7 54,7 98.4
ANG NO. MEN BASED ON 2000 HOS/10 191.6 - 35.9 94.7 30,4 34.4 -27.1 49.2
472.4 MN D 303?

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•-	48.5	265	34.0	26.1	90,0	320	Ţ	848	DON 2000 HAS/10	ANG NO. MEN BASED ON 2000 HASKIR	
*** * * *	97.0	52.9	679	225	0.081	65.9		1695	DON9.0 YEARS	AMMAL MIH BASED ON 9.0 YEARS	<u> </u>
	8732	475,7	611,4	4698	1619,8	5934	Ĩ	1525,4	4884000	torn	<u> </u>
·	1111	93.0	108,7	139,4	201.6	111.6	i,	2673	000185	HOREL	1
	727	125.8	-	10,2	182.2	39,1		1.25.1	182000 1751	PARICING	1
	170,9	4,09	1028	1542	4280	160,6	- J.	407,7	1285000 4022	APARAMENTS	
	459,7	8,757	358.2	153.2	7000	239,4		02/0	19155006120	OFACE	1
	57.8	41.7	41.7	12.8	1050	427	-	1178	32/000	RETAIL	T
	AU	EVE	STMF	iPUM	IRO	LAB	BRI	CAR			1
	DNJE	GNIC	TRS /s	MBER	MOI	ORE	CW	DEM	T V	SPACE TYPE	
	RS	ANS	mvi	8	VŒN	es	1 ERS	ERS			
		inte		Com	11 100 11 11 11 11 11 11 11 11 11 11 11	OPHON:	MATERNATIVE	MATE			F
			SANOS	JOHT	M)sano	MAN HC	voy:	DLAZA STUDY: MAN	PARK DLA	BRA	'IGURE
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BRA. PARK DLAZA STUDY: MAN HOURS (M7HOUS)	
MATERIALS OPTION! LOW LABOR SHILD OF	
SULVA SOON SOON	
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2121 2121 2121 2121 2121 2121 2121 212	
27 27 25	1
669.2 145 93/10 242 / 427	1 2
647.7 233.4 1556 914	2 0 0
378	70
701.613941087 920	170
5477 651,1 510 5	10
211.11 60.9 124 567	1 0
304 26,2 284 54	A A
WANT WENT OF	
105 0 29 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 1. 20 20 20 1. 20 20 20 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20	
$\mathcal{N}(\mathcal{C})$	•

3 9999 06315 034 4

*			FIGURE 2 6-20-75
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	CURRENT.	ESTIMATED	
	MEMBERSHIP	CURRENT	· · · · · · · · · · · · · · · · · · ·
		UNEMPLAIT	
CARPENTERS	1165	175	
BMCHONNERS	1700	595	- ,
LABONERS	3500	700	
(Romonhers	1700	510	
PUMBERS	1400	420	
STATTITERS + SHTMPLHICS	. 2900	580	
EVEGNUANS	2400	720	-
AUDITERS *	9880	2480	AND THE RESIDENCE OF THE PARTY
TOTAL	24645	6180	(25,190 UNEMPLOYED)
1011/1000	CONTRACT IN	a Fan Or at Ta	24 44017
211 TO ABOUT 3	80 MEN ANNUA	MY OR FRAM	ABOUT 1% TO 1.6%
CURRENT UNEMP	722T.)	% TO ABOM 6,2	% OF TITE

3. 2mg.
71
22 3. 2mg.
71
24 3